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64-13 M 84-61-15

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Quarterly REPORT ON 1 March - 31 May 1962
CONTRACT # DA 92-597-FEC-35859
INCLUSIVE DATES 1 March 1962 TO 31 May 1962

4392

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SUBJECT OF INVESTIGATION

STUDIES ON IMMUNOLOGICAL
DIAGNOSIS AND THERAPY OF
PARAGONIMIASIS.

RESPONSIBLE INVESTIGATOR

(DAL)

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U.S. Army Research & Development Group (9852) (Far East)

Office of the Chief of Research and Development
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Contract No.
DA-92-557-FEC-35859

Date: 1 June, 1962

Quarterly Report

Abstract report of the progress and phase of the work for one year from 1 March 1962 through 28 February 1963 and studied during the period from 1 March 1962 to 31 May 1962.

The purpose of the investigation being made is as follows:

- 1) Studies on polypeptide of the adults of Paragonimus westermani.
- 2) Studies on Hemagglutination test for paragonimiasis.
- 3) Studies on the Chemotherapy.

1. The follow-up studies for one year after mass-treatment with Bithionol.

The authors carried out non-hospitalized mass-treatment with Bithionol on 16 human paragonimiasis patients in Ohama-machi, Shizuoka Prefecture, Japan, and reported on the results for 6 months after the treatment in the previous final report particularly.

The follow-up studies from 6 months to one year after treatment have been completed. The results were as follows:

Paragonimus eggs in stools of all cases disappeared after the medications of Bithionol (30mg/kg-50mg/kg perday from 2 to 5 doses, and no relapses were found as shown in table 1. Bloody or non-bloody sputum,

too, disappeared with the administrations of this drug from 2 to 5 doses and no relapses were found up to now. The complement fixation tests of these 16 cases turned negative within 5 months after the treatment and negative reactions were kept up thereafter as shown in Table 2. Concerning the size of wheals caused with the repeated injections of ppt and V.B.S. antigens at the same sites of the patients before and after the treatment, neither tendency of decrease of the size of wheals nor effects of sensitization of the skin sites with the repeated injections of the antigens were found as shown in Table 3 and 4. No side effects of Bithionol could be found from the results of health conditions examined during 1 year after the treatment as shown in Table 5.

2. Studies on the serum-protein analysis of the paragonimiasis patients.

The analysis of the serum-protein fractionations of the paragonimiasis patients with paper electrophoresis before and after the treatment are now being carried out.

3. Studies on the doses of Bithionol and roentgenological findings after the treatment.

Various daily doses of Bithionol; 20mg/kg, 30mg/kg, 40mg/kg and 50mg/kg were given to 77 cases of Paragonimiasis patients , the efficacies of these doses and roentgenological observations of the chest X-ray findings after the treatment are now being studied at the National Kochi Hospital.

Table 1. Variations in E. P. G. in stools and the clearance after the administration of Bithionol. (Sedimentation techniques with the A.M.S.; III method)

	Cumulative No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Days	Number of the doses	W	F	H	R	M	M	M	F	M	F	M	M	M	M	M	M
1	{Before ⁷	54	7	5	21	162	377	12	18	5	428	18	31	0	2	0	3
2	{treatment}	73	3	4	26	72	509	4	8	12	857	32	58	0	0	0	-3
1	1	11	8	11	33	11	401	28	0	2	280	6	28	3	7	3	0
2	2	115	2	0	3	14	204	3	7	3	849	10	9	0	0	4	0
3	3	12	4	0	2	18	201	0	5	5	96	4	3	4	4	0	0
4	4	6	1	1	4	12	26	3	4	2	148	2	1	2	0	0	0
5	5	1	1	2	0	20	2	0	3	6	1	4	4	2	0	0	0
6	6	2	0	1	0	1	0	1	4	1	14	0	1	0	0	0	0
7	7	0	2	0	1	0	0	0	0	0	6	0	1	0	0	0	0
8	8	0	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0
9	9	5	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0
10	10	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	11	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	19	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
51	51	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
52	52	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
53	53	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
54	54	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57	57	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
58	58	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	59	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
60	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
61	61	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
62	62	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
63	63	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	64	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
65	65	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
66	66	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
67	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
68	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
69	69	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
71	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
72	72	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
73	73	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74	74	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
76	76	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
77	77	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
78	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	79	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
80	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
81	81	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	82	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	83	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
84	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	85	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
86	86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
87	87	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
88	88	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
89	89	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
90	90	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
91	91	0	0	0	0	0											

Table 2. Changes of dilution titer of antiserum in Complement-fixation tests on the individuals before, during and after treatment with Sulfathionol.

Case No.	Age	Sex	Before treatment	After 10 times medication		1 M.	2 M.	3 M.	4 M.	5 M.	6 M.	9 M.	12 M.
				med.	tit.								
1	12	M	X .63	X .45	X .20	-	-	-	-	-	-	-	-
2	14	F	>X160	>X160	X160	X 33	X 10	-	-	-	-	-	-
3	14	M	>X160	>X160	X 54	X 41	X 11	-	-	-	-	-	-
4	14	F	>X160	X .95	X 25	X 13	-	-	-	-	-	-	-
5	42	M	>X160	>X160	>X160	X 40	X 42	-	-	-	-	-	-
6	16	M	>X160	>X160	>X160	X 60	-	-	-	-	-	-	-
7	32	M	>X160	>X160	X160	X 40	X 22	-	-	-	-	-	-
8	59	M	>X160	>X160	X160	X 48	X 94	X 93	X 11	-	-	-	-
9	62	F	>X160	>X160	>X160	>X160	X 29	-	-	-	-	-	-
10	15	M	>X160	>X160	>X160	>X160	X 57	X 12	-	-	-	-	-
11	44	F	>X160	>X160	X 51	X 25	X 14	-	-	-	-	-	-
12	36	F	>X160	X160	X 40	X 26	X 11	-	-	-	-	-	-
13	66	M	X .27	X 11	-	-	-	-	-	-	-	-	-
14	31	M	>X160	>X160	X 50	X 54	X 43	X 11	-	-	-	-	-
15	29	M	>X160	>X160	X 95	-	-	-	-	-	-	-	-
16	59	M	>X160	>X160	X160	X 43	X 24	-	-	-	-	-	-

- negative reaction

Table 3. Changes of the increase of diameters of wheal with ppt antigen on the individuals before, during and after treatment with Bithionol.
(unit: mm)

Case No.	Age	Sex	Before treatment				During treatment								After treatment			
			10th day	20th day	1st day	2nd day	3rd day	4th day	5th day	6th day	7th day	8th day	9th day	10th day	11th day	12th day	Average	
1	12	M	3	4	5	-	3	2	2	-	3	2	-	3	2	3.1		
2	14	F	8	8	7	5	-	11	6	9	-	-	9	-	9	7.9		
3	14	M	10	5	6	-	7	9	5	9	6	-	8	-	8	7.2		
4	14	F	8	10	7	7	10	6	7	6	5	8	8	-	8	7.5		
5	42	M	8	6	7	10	9	11	-	14	9	-	14	-	14	9.8		
6	18	M	5	8	6	5	-	-	-	-	-	-	-	-	-	6.0		
7	32	M	6	5	7	8	8	7	9	7	5	7	9	9	7	7.1		
8	59	M	13	17	9	9	7	12	10	13	10	-	13	-	13	11.3		
9	62	F	10	17	9	9	9	3	12	-	-	10	14	-	10	10.9		
10	16	K	6	6	5	5	4	5	7	6	-	-	9	-	9	5.9		
11	49	F	8	6	7	9	6	9	7	10	6	-	8	-	8	7.6		
12	38	F	7	4	5	6	6	8	5	-	6	8	7	-	7	6.2		
13	66	M	3	3	4	4	6	2	2	-	1	-	2	-	2	3.3		
14	31	M	10	7	10	11	7	8	7	12	-	9	7	-	7	8.8		
15	20	M	8	6	7	-	6	-	-	-	-	-	-	-	-	6.8		
16	59	M	3	8	9	15	10	7	14	8	6	9	9	9	9	9.4		
Average			7.6	7.5	6.8	7.7	7.3	7.6	7.2	7.8	6.8	7.1	9.0	7.5				

(Control)

1	9	M	0	0	0	0	2	0	0	0	0	0	-	0	0	0.2
2	13	M	0	0	0	0	0	0	0	1	0	0	-	0	0	0.1
													-	0	-	

Average	0	0	0	0	1.0	0	0.5	0	0	-	0	0	-	0	0.2	
													-	0	-	

- not examined

1

Table 4. Changes of the increase of diameter of wheel with V.P.S antigen on the individuals before, during and after treatment with Bithionol.
(unit: mm)

Case No.	Age	Sex	Before treatment	During			After treatment					Average		
				10th day	20th day	months	1	2	3	4	5	9		
1	12	M	4	5	4	7	-	5	5	6	-	3	5	5.5
2	14	F	13	11	10	8	-	8	13	9	-	-	10	10.3
3	14	M	14	10	8	-	10	9	9	10	-	12	10.1	
4	14	F	11	11	10	7	7	10	7	7	8	8	8.5	
5	42	M	14	3	12	12	15	22	-	15	9	-	14	13.4
6	18	M	.8	14	8	9	-	-	-	-	-	-	9.5	
7	32	M	6	7	8	7	10	8	9	8	8	9	8.9	
8	59	M	18	9	11	13	7	14	16	16	7	-	14	12.5
9	62	F	17	16	16	8	17	10	16	-	-	14	11	14.1
10	16	M	17	18	5	5	8	6	9	8	-	-	9	9.4
11	49	F	8	6	8	11	8	10	16	7	9	7	11	9.2
12	38	F	13	10	8	8	6	9	7	-	8	11	6	8.6
13	66	M	6	5	9	8	8	8	7	-	-	7	-	7.3
14	31	M	12	15	17	10	22	14	18	13	-	12	16	14.9
15	20	M	11	8	6	-	15	-	-	-	-	-	-	10.5
16	59	M	11	10	9	6	18	8	11	10	9	10	9	10.5

3	14	M	14	10	6	-	10	9	9	9	10	-	12	10.1
4	14	F	11	11	10	7	7	10	7	7	8	8	8	8.5
5	42	M	14	8	12	12	15	22	-	15	9	-	14	13.4
6	18	M	8	14	8	8	-	-	-	-	-	-	-	9.5
7	32	M	6	7	8	7	10	8	9	8	8	9	16	8.9
8	59	M	18	9	11	13	7	14	16	16	7	-	14	12.5
9	62	F	17	16	8	17	10	16	-	-	14	11	11	14.1
10	16	M	17	18	5	5	8	6	9	8	-	-	9	9.4
11	49	F	8	6	8	11	8	10	16	7	9	7	11	9.2
12	38	F	13	10	8	8	6	9	7	-	8	11	6	8.6
13	66	M	6	5	9	8	8	8	7	-	7	-	-	7.3
14	31	M	12	15	17	10	22	14	18	13	-	12	16	14.9
15	20	M	11	8	6	-	15	-	-	-	-	-	-	10.5
16	59	M	11	10	9	8	18	8	11	10	9	10	9	10.3
Average														
21.6														
(Control)														
1	9	M	3	3	2	1	1	0	0	0	0	-	0	0.9
2	13	M	1	3	0	0	0	1	0	0	0	-	0	0.5
Average														
2.0														

Average 21.6 10.3 9.4 8.6 11.6 10.1 11.0 9.8 8.5 9.0 10.8 10.2

- not examined

2

Table 5. Health conditions after treatment.

Months	Case No. Sex.	Health Conditions														
		1 M	2 F	3 M	4 F	5 M	6 M	7 M	8 M	9 F	10 M	11 F	12 M	13 F	14 M	15 M
1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- healthy